AMENDMENT(S) TO THE CLAIMS:

The following listing of claims will replace all prior versions, and listings, of claims on the application. Claims being amended are set forth in a larger font than all other claims. All claims are set forth below with one of the following annotations.

- (Original): Claim filed with the application following the specification.
- (Currently amended): Claim being amended in the current amendment paper.
- (Cancelled): Claim cancelled or deleted from the application.
- (Withdrawn): Claim still in the application, but in a non-elected status.
- (New): Claim being added in the current amendment paper.
- (Previously presented): Claim not being currently amended, but which was amended or was new in a previous amendment paper.
- (Not entered): Claim presented in a previous amendment, but not entered or whose entry status unknown. No claim text is shown.

1. (Currently amedended) A method comprising:

accepting line-scan data sets at a camera rate from a line-scan camera, each line-scan data set being of an object imaged for a fixed exposure time and moving at a relative speed in relation to the line-scan camera;

accepting a measure of the relative speed between the line-scan camera and the object being imaged by the line-scan camera; and

resampling the line-scan data sets to produce resampled line image data sets at a desired sampling distance, the resampling being a function of the camera rate, the measure of relative speed and the desired sampling distance,

such that the resampling adjusts for ~~the~~ variations in relative speed to produce faithfully exposed data.

2. (Previously Presented) A method as recited in claim 1, wherein there is a resampling time corresponding to each resampled line image data set, and wherein the resampling produces a resampled line image data set that is a weighted sum of the accepted line-scan data sets that are partially or completely accepted during the resampling time corresponding to the resampled line image data set, the weightings a function of the relative speed such that a first proportion of a first accepted line-scan data set is weighted less when the relative speed is slower than a second proportion of a second accepted line-scan data set corresponding to when the relative speed is faster.

3. (Original) A method as recited in claim 2, wherein for a particular resampled line image data set, the weighting of any particular accepted line-scan data set is further a function of the proportion of overlap in the relative motion direction of the accepted with the spatial resampling period of the particular resampled line image data set.

4. (Original) A method as recited in claim 3,

wherein each accepted line-scan data set corresponds to imaging for a fixed exposure time while there is relative motion, such that each accepted line-scan data set has a corresponding distance of relative motion proportional to the relative speed,

wherein the resampling is as if each resampled line image data was obtained by imaging at a variable exposure time, such that each resampled line image data set has a fixed distance of relative motion during the variable exposure time, and

wherein for a particular resampled line image data set, during the fixed distance of relative motion during the variable exposure time, the resampled line image data set includes a contribution from any accepted line-scan data set whose corresponding distance of relative motion overlaps with the fixed distance of relative motion, said contribution weighted by the fraction of the corresponding distance of relative motion in the overlap.

5. (Original) A method as recited in claim 1, wherein the measure of the relative speed is a set of pulses at a rate proportional to the relative speed.

6. (Original) A method as recited in claim 1, wherein the fixed exposure time is settable.

7. (Original) A method as recited in claim 1, wherein the resampling uses nearest neighbor resampling.

8. (Currently amended) An apparatus comprising:

means for accepting line-scan data sets at a camera rate from a line-scan camera, each line-scan data set being of an object imaged for a fixed exposure time and moving at a relative speed in relation to the line-scan camera;

means for resampling coupled to the means for accepting, the resampling being of the line-scan data sets to produce resampled line image data sets at a desired sampling distance, the resampling a function of the camera rate, a measure of the relative speed between the line-scan camera and the object being imaged by the line-scan camera; and the desired sampling distance,

such that the resampling by the means for resampling adjusts for ~~the~~ variations in relative speed to produce faithfully exposed data.

9. (Previously Presented) An apparatus as recited in claim 8, wherein there is a resampling time corresponding to each resampled line image data set, and wherein the

means for resampling produces a resampled line image data set that is a weighted sum of the accepted line-scan data sets that are partially or completely accepted during the resampling time corresponding to the resampled line image data set, the weightings a function of the relative speed such that a first proportion of a first accepted line-scan data set is weighted less when the relative speed is slower than a second proportion of a second accepted line-scan data set corresponding to when the relative speed is faster.

10. (Original) An apparatus as recited in claim 9, wherein for a particular resampled line image data set, the weighting of any particular accepted line-scan data set is further a function of the proportion of overlap in the relative motion direction of the accepted with the spatial resampling period of the particular resampled line image data set.

11. (Original) An apparatus as recited in claim 8, wherein the measure of the relative speed is a set of pulses at a rate proportional to the relative speed.

12. (Original) An apparatus as recited in claim 8, wherein the fixed exposure time is settable.

13. (Original) An apparatus as recited in claim 8, wherein the means for resampling uses nearest neighbor resampling.

14. (Currently amended) An apparatus comprising:

a data conditioner to accept line-scan data sets at a camera rate from a line-scan camera, each line-scan data set being of an object imaged for a fixed exposure time and moving at a relative speed in relation to the line-scan camera;

an encoder terminal to accept a measure of the relative speed between the line-scan camera and the object being imaged by the line-scan camera; and

a resampler coupled to the ~~video signal terminal~~ data conditioner and to the encoder terminal, the resampler to resample accepted line-scan data sets to produce sets of line image data at a desired sampling distance, the resampling a function of the camera rate, the measure of relative speed and the desired sampling distance,

such that the resampling adjusts for ~~the~~ variations in relative speed to produce faithfully exposed data.

15. (Original) An apparatus as recited in claim 14, wherein there is a resampling time corresponding to each resampled line image data set, and wherein the resampler produces a resampled line image data set that is a weighted sum of the accepted line-scan data sets that are partially or completely accepted during the resampling time corresponding to the resampled line image data set, the weightings a function of the relative speed such that a first proportion of a first accepted line-scan data set is

weighted less when the relative speed is slower than a second proportion of a second accepted line-scan data set corresponding to when the relative speed is faster.

16. (Original) An apparatus as recited in claim 15, wherein for a particular resampled line image data set, the weighting of any particular accepted line-scan data set is further a function of the proportion of overlap in the relative motion direction of the accepted with the spatial resampling period of the particular resampled line image data set.

17. (Original) An apparatus as recited in claim 15,

wherein each accepted line-scan data set corresponds to imaging for a fixed exposure time while there is relative motion, such that each accepted line-scan data set has a corresponding distance of relative motion proportional to the relative speed,

wherein the resampling is as if each resampled line image data was set obtained by imaging at a variable exposure time, such that each resampled line image data set has a fixed distance of relative motion during the variable exposure time, and

wherein for a particular resampled line image data set, during the fixed distance of relative motion during the variable exposure time, the resampled line image data set includes a contribution from any accepted line-scan data set whose corresponding distance of relative motion overlaps with the fixed distance of relative motion, said contribution weighted by the fraction of the corresponding distance of relative motion in the overlap.

18. (Original) An apparatus as recited in claim 14, wherein the measure of the relative speed is a set of pulses at a rate proportional to the relative speed.

19. (Original) An apparatus as recited in claim 14, wherein the fixed exposure time is settable.

20. (Original) An apparatus as recited in claim 14, wherein the resampling uses nearest neighbor resampling.

21. (Currently amended) An apparatus comprising:

a data conditioner to accept line-scan data sets at a camera rate from a line-scan camera, each line-scan data set being of an object imaged for a fixed exposure time and moving at a relative speed in relation to the line-scan camera;

a rate converter to accept a measure of the relative speed between the line-scan camera and the object being imaged by the line-scan camera and produce a web-rate signal related to the accepted measure of relative speed by a scaling factor; and

a resampler coupled to the ~~video signal terminal~~ data conditioner and to the ~~encoder terminal~~ rate converter, the resampler to resample accepted line-scan data sets to produce sets of resampled line image data at

a desired sampling distance, the resampling a function of the camera rate, the measure of relative speed and the desired sampling distance,

an image store coupled to the resampler to accept the sets of line image data; and

an interface between a computer system and the rate converter, the resampler, and image store to provide for transferring the resampled line image data sets to the computer system, and for setting the scaling factor and desired sampling distance,

such that the resampling adjusts for ~~the~~ variations in relative speed to produce faithfully exposed data.

22. (Previously Presented) An apparatus as recited in claim 21, wherein there is a resampling time corresponding to each resampled line image data set, and wherein the resampler produces a resampled line image data set that is a weighted sum of the accepted line-scan data sets that are partially or completely accepted during the resampling time corresponding to the resampled line image data set, the weightings a function of the relative speed such that a first proportion of a first accepted line-scan data set is weighted less when the relative speed is slower than a second proportion of a second accepted line-scan data set corresponding to when the relative speed is faster.

23. (Original) An apparatus as recited in claim 22, wherein for a particular resampled line image data set, the weighting of any particular accepted line-scan data set is further a function of the proportion of overlap in the relative motion direction of the accepted with the spatial resampling period of the particular resampled line image data set.

24. (Original) An apparatus as recited in claim 21, wherein the resampler includes a processor and a memory, the memory storing a set of instructions to cause the processor carry out the resampling.

25. (Original) An apparatus as recited in claim 22, wherein each line-scan data set includes pixel data for each of a set of pixels, and wherein the resampler includes:

a multiplier having a set of inputs for the set of pixel data, a coefficient input terminal accepting a coefficient, and a set of outputs to output the results of multiply the pixel data by the accepted coefficient;

an adder/accumulator coupled to the set of outputs of the multiplier to accumulate the multiplier outputs with previous multiplier outputs; and

a coefficient generator coupled to the rate converter and the camera, accepting a signal indicative of the camera rate, and having a coefficient output coupled to the coefficient input of the multiplier, the coefficient generator to generate the coefficient for the multiplier.

26. (Original) An apparatus as recited in claim 22, wherein the resampler accepts a set of camera rate pulses from the line-scan camera indicating each time a line-scan data set is available from the camera, wherein the resampler further comprises:

a circuit coupled between the rate converter and the coefficient generator to convert the web-rate signal to a set of sampling pulses, such that a resampled line of image data is generated each time a sampling pulse is issued, and

wherein the coefficient generator includes a period measuring circuit that measures the period between either a sampling pulse or a camera-rate pulse.

27. (Original) An apparatus as recited in claim 22,

wherein each accepted line-scan data set corresponds to imaging for a fixed exposure time while there is relative motion, such that each accepted line-scan data set has a corresponding distance of relative motion proportional to the relative speed,

wherein the resampling is as if each resampled line image data was set obtained by imaging at a variable exposure time, such that each resampled line image data set has a fixed distance of relative motion during the variable exposure time, and

wherein for a particular resampled line image data set, during the fixed distance of relative motion during the variable exposure time, the resampled line image data set includes a contribution from any accepted line-scan data set whose corresponding distance of relative motion overlaps with the fixed distance of relative motion, said contribution weighted by the fraction of the corresponding distance of relative motion in the overlap.

28. (Original) An apparatus as recited in claim 21, wherein the measure of the relative speed is a set of pulses at a rate proportional to the relative speed.

29. (Original) An apparatus as recited in claim 21, wherein the fixed exposure time is settable.

30. (Original) An apparatus as recited in claim 21, wherein the resampler uses nearest neighbor resampling.

31. (Currently amended) A carrier medium carrying machine readable instructions to instruct one or more processors of a processing system to implement a method comprising:

accepting line-scan data sets at a camera rate from a line-scan camera, each line-scan data set being of an object imaged for a fixed exposure time and moving at a relative speed in relation to the line-scan camera;

accepting a measure of the relative speed between the line-scan camera and the object being imaged by the line-scan camera; and

resampling the line-scan data sets to produce resampled line image data sets at a desired sampling distance, the resampling a function of the camera rate, the measure of relative speed and the desired sampling distance,

such that the resampling adjusts for ~~the~~ variations in relative speed to produce faithfully exposed data.

32. (Previously Presented) A carrier medium as recited in claim 31, wherein there is a resampling time corresponding to each resampled line image data set, and wherein the resampling produces a resampled line image data set that is a weighted sum of the accepted line-scan data sets that are partially or completely accepted during the resampling time corresponding to the resampled line image data set, the weightings a function of the relative speed such that a first proportion of a first accepted line-scan data set is weighted less when the relative speed is slower than a second proportion of a second accepted line-scan data set corresponding to when the relative speed is faster.

33. (Original) A carrier medium as recited in claim 32, wherein for a particular resampled line image data set, the weighting of any particular accepted line-scan data set is further a function of the proportion of overlap in the relative motion direction of the accepted with the spatial resampling period of the particular resampled line image data set.

34. (Original) A carrier medium as recited in claim 32,

wherein each accepted line-scan data set corresponds to imaging for a fixed exposure time while there is relative motion, such that each accepted line-scan data set has a corresponding distance of relative motion proportional to the relative speed,

wherein the resampling is as if each resampled line image data was set obtained by imaging at a variable exposure time, such that each resampled line image data set has a fixed distance of relative motion during the variable exposure time, and

wherein for a particular resampled line image data set, during the fixed distance of relative motion during the variable exposure time, the resampled line image data set includes a contribution from any accepted line-scan data set whose corresponding distance of relative motion overlaps with the fixed distance of relative motion, said contribution weighted by the fraction of the corresponding distance of relative motion in the overlap.

35. (Original) A carrier medium as recited in claim 31, wherein the measure of the relative speed is a set of pulses at a rate proportional to the relative speed.

36. (Original) A carrier medium as recited in claim 31, wherein the fixed exposure time is settable.

37. (Original) A carrier medium as recited in claim 31, wherein the resampling uses nearest neighbor resampling.